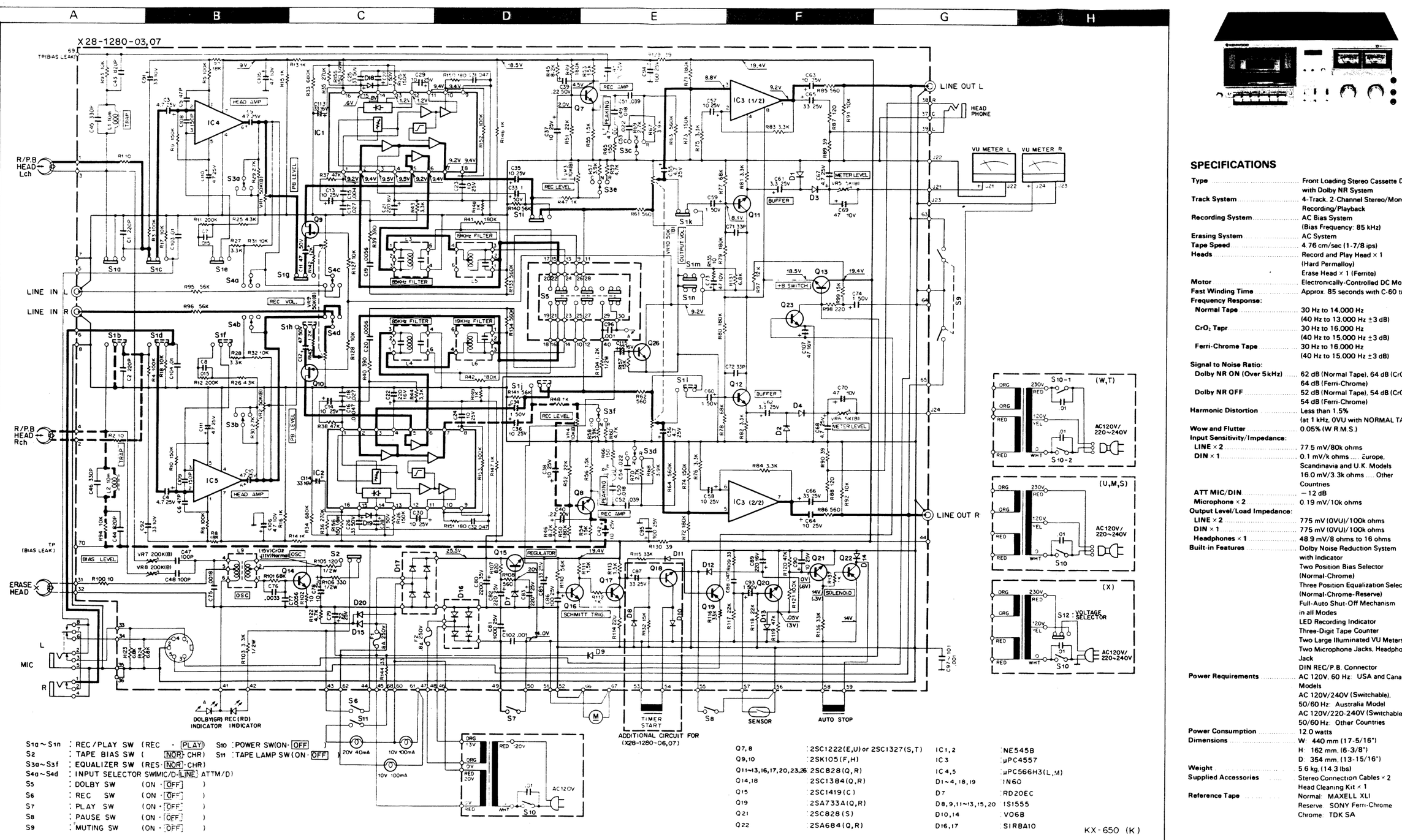
KENWOOD

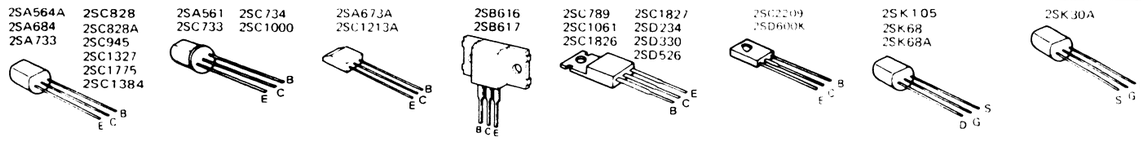
STEREO CASSETTE DECK

(KX-605) KX-650 ①



Q7,8	2SC1222(E,U) or 2SC1327(S,T)	IC1,2	NE545B
Q9,10	2SK105(F,H)	IC3	μPC4557
Q11~13,16,17,20,23,26	2SC828(Q,R)	IC4,5	μPC566H3(L,M)
Q14,18	2SC1384(Q,R)	D1~4,18,19	1N60
Q15	2SC1419(C)	D7	RD20EC
Q19	2SA733A(Q,R)	D8,9,11~13,15,20	1S1555
Q21	2SC828(S)	D10,14	V06B
Q22	2SA684(Q,R)	D16,17	SIR8A10

KX-650 (K)



DC voltages are measued with 20KΩ/V VOM at playback mode except those of Q14, measured at recording mode.

SPECIFICATIONS

Type	Front Loading Stereo Cassette Deck with Dolby NR System
Track System	4-Track, 2-Channel Stereo/Mono Recording/Playback
Recording System	AC Bias System (Bias Frequency: 85 kHz)
Erasing System	AC System
Tape Speed	4.76 cm/sec (1-7/8 ips)
Heads	Record and Play Head × 1 (Hard Permalloy) Erase Head × 1 (Ferrite)
Motor	Electronically-Controlled DC Motor
Fast Winding Time	Approx. 85 seconds with C-60 tape
Frequency Response:	
Normal Tape	30 Hz to 14,000 Hz (40 Hz to 13,000 Hz ±3 dB)
CrO_2 Tape	30 Hz to 16,000 Hz (40 Hz to 15,000 Hz ±3 dB)
Ferri-Chrome Tape	30 Hz to 16,000 Hz (40 Hz to 15,000 Hz ±3 dB)
Signal to Noise Ratio:	
Dolby NR ON (Over 5kHz)	62 dB (Normal Tape), 64 dB (CrO_2), 64 dB (Ferri-Chrome)
Dolby NR OFF	52 dB (Normal Tape), 54 dB (CrO_2), 54 dB (Ferri-Chrome)
Harmonic Distortion	Less than 1.5% (at 1 kHz, 0VU with NORMAL TAPE)
Wow and Flutter	0.05% (W.R.M.S.)
Input Sensitivity/Impedance:	
LINE × 2	77.5 mV/80k ohms
DIN × 1	0.1 mV/k ohms ..... Europe, Scandinavia and U.K. Models 16.0 mV/3.3k ohms ..... Other Countries
ATT MIC/DIN	−12 dB
Microphone × 2	0.19 mV/10k ohms
Output Level/Load Impedance:	
LINE × 2	775 mV (0VU)/100k ohms
DIN × 1	775 mV (0VU)/100k ohms
Headphones × 1	48.9 mV/8 ohms to 16 ohms
Built-in Features	Dolby Noise Reduction System with Indicator Two Position Bias Selector (Normal-Chrome) Three Position Equalization Selector (Normal-Chrome-Reserve) Full-Auto Shut-Off Mechanism in all Modes LED Recording Indicator Three-Digit Tape Counter Two Large Illuminated VU Meters Two Microphone Jacks, Headphone Jack DIN REC/P.B. Connector
Power Requirements	AC 120V, 60 Hz: USA and Canada Models AC 120V/240V (Switchable), 50/60 Hz: Australia Model AC 120V/220-240V (Switchable), 50/60 Hz: Other Countries
Power Consumption	12.0 watts
Dimensions	W: 440 mm (17-5/16") H: 162 mm (6-3/8") D: 354 mm (13-15/16")
Weight	5.6 kg (14.3 lbs)
Supplied Accessories	Stereo Connection Cables × 2 Head Cleaning Kit × 1
Reference Tape	Normal: MAXELL XLI Reverse: SONY Ferri-Chrome Chrome: TDK SA

KENWOOD follows a policy of continuous advancement in development. For this reason specifications may be changed without notice.

NOTE: Dolby is a trademark of Dolby Laboratories.

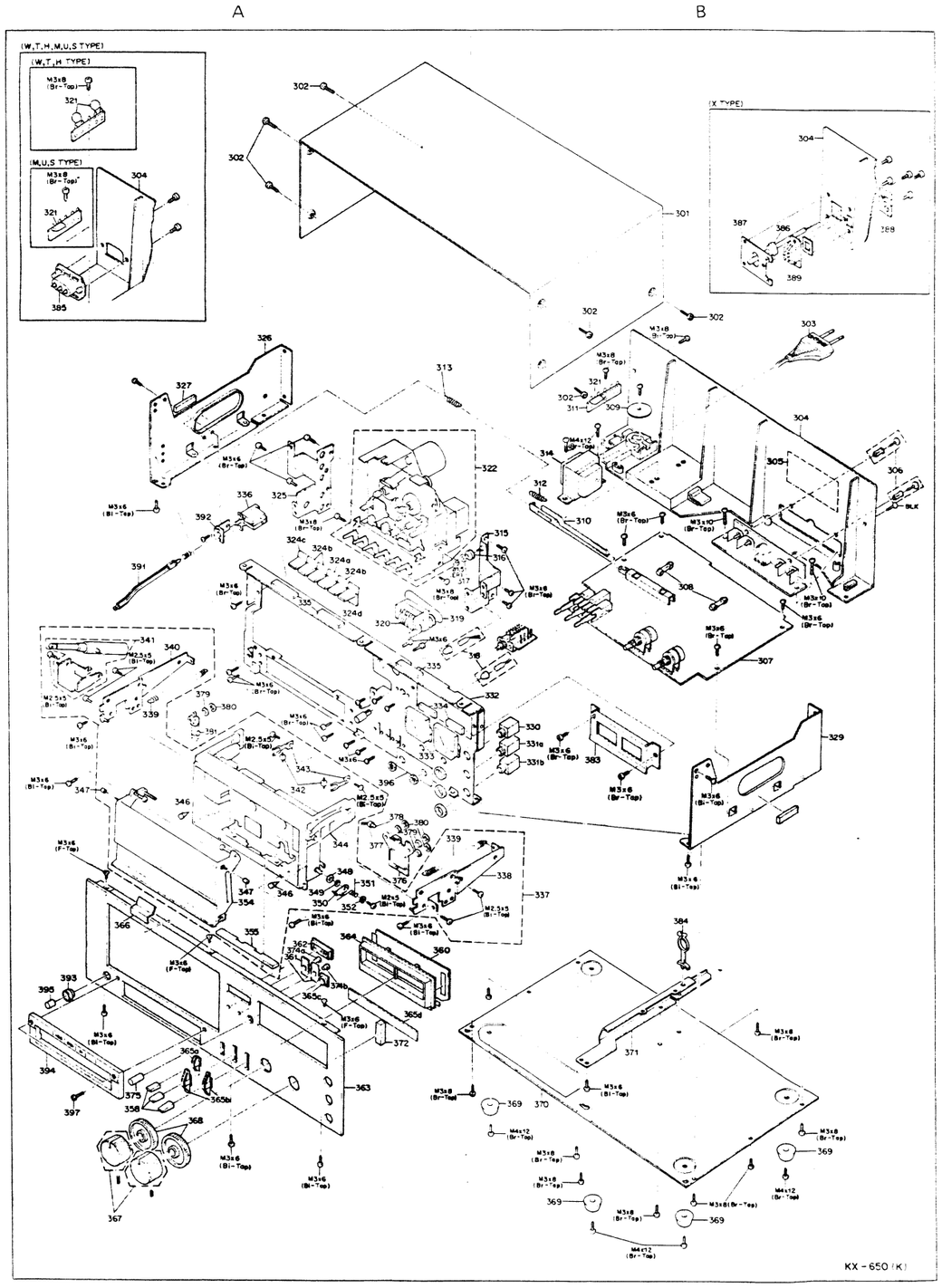
KX-650 KX-650

NOTE:
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

U.S.A.	**K**
Canada	**P**
PX	**U**
Australia	**X**
Europe	**W**
England	**T**
South Aflica	**S**
Other Area	**M**
Audio Club (KX-605)	**H**

☆: New Parts

Fig. No.	Parts No.	Description	Remarks
301	A01-0605-12	Case	1B
302	N09-0831-04	Binding head tap tight screw	1A,1B
303	E30-0181-15	Power cord **K,P**	1B
	E30-0185-15	Power cord **X**	1B
	E30-1305-15	Power cord **U,M**	1B
	E30-1328-05	Power cord **T,S**	1B
	E30-1329-05	Power cord **W,H**	1B
304	A23-1227-05	Rear panel **K,P**	☆1B
	A23-1228-05	Rear panel **U,W,T,S,M,H**	☆1B
	A23-1233-05	Rear panel **X**	☆1B
305	B42-1354-00	Adjustment sheet	2B
306	N29-0211-05	Push rivet	2B
307	X28-1280-01	REC/PLAY PC board ass'y **K,P**	2B
or	X28-1280-03		
307	X28-1280-06	REC/PLAY PC board ass'y	2B
or	X28-1280-07	**U,X,W,T,M,H**	
308	F05-4016-05	Fuse, 800mA (F2) **W,T,H**	2B
	F05-8012-05	Fuse, 400m AT (F1) **W,T,H**	2B
	F05-8015-05	Fuse, 800mA **U,X,S,M**	2B
	F05-8018-05	Fuse, 800mA **K,P**	2B
309	—	Power cord holder **K,P**	1B
310	—	REC slider	2B
311	E22-0463-05	Lug type terminal strips	1B
312	G01-0680-14	Coil spring	2B
313	G01-0706-04	Coil spring B	1A
314	L01-6171-05	Power transformer **K,P**	2B
	L01-6174-05	Power transformer **W,T,H**	2B
	L01-6177-05	Power transformer **U,X,S,M**	2B
315	—	Bracket (R) ass'y	2B
316	D15-0509-04	Interconnecting pulley	2B
317	N19-0524-04	Polyethylene slide washer	2A
318	B30-0712-05	Lamp, 10V, 100mA	2A
319	D16-0213-04	Counter belt	2A
320	B35-0205-05	Tape counter	2A
321	C54-3310-39	Ceramic capacitor, 0.01μF +100%−0% **W,T,H**	1A,1B
	C90-0145-05	Mylar capacitor, 0.01μF **K**	1A,1B
	C91-0025-05	Polystyrene capacitor, 0.01μF **P**	1A,1B
	C91-0308-05	Mylar capacitor, 0.01μF **U,X,S,M**	1A,1B
322	D40-0452-05	Mechanism ass'y **K,P**	2A
	D40-0454-05	Mechanism ass'y **U,X,W,T,M,H**	2A
323	—	—	
324a	K29-0653-03	Knob (▶)	2A
324b	K29-0654-03	Knob (◀◀, ▶▶, STOP)	2A
324c	K29-0655-03	Knob (RECORD)	2A
324d	K29-0656-03	Knob (PAUSE)	2A
325	—	Bracket (L)	2A
326	—	Frame (L)	1A
327	G13-0422-04	Cushion (A)	1A
328	—	—	
329	—	Frame (R)	2B
330	E11-0305-05	Headphone jack	2B
331a	E11-0306-05	Mic jack (L)	2B
331b	E11-0307-05	Mic jack (R)	2B
332	—	Sub panel ass'y	2B
333	B31-0510-05	VU meter	☆2A
334	G13-0444-04	VU meter cushion (B)	2A
335	G13-0439-04	Cushion (D)	2A
336	S40-1304-05	Power switch **K,P**	2A
	S40-1306-05	Power switch **U,X,S,M**	☆2A
	S40-2306-04	Power switch **W,T,H**	2A
337	**B07-0558-12**	**Housing ass'y (338～355)**	☆3B
338	J21-2257-04	Housing holder ass'y (R)	3B
339	G01-0643-04	Coil spring (A)	2A
340	J21-2256-04	Housing holder ass'y (L)	2A
341	D39-0082-04	Damper ass'y	2A
342	D14-0208-14	Roller	2A
343	G02-0308-14	Plate spring	2A
344	—	Housing	2A
345	—	—	
346	J42-0311-04	Rubber bushing	2A,3A
347	D14-0207-04	Roller (B)	2A,3A
348	N19-0521-04	Rubber washer	3A
349	N19-0520-04	Polyethylene slider washer	3A
350	D10-0488-04	Lock lever ass'y (A)	3A
351	G01-0641-04	Torsion spring	3A
352	N19-0517-04	Flat washer	3A
353	—	—	
354	A53-0225-03	Cassette lid	3A
355	F07-0639-04	Housing cover	3A
356	—	—	
357	—	—	
358	K27-0318-04	Knob (lever)	☆3A
359	—	—	
360	B10-0504-04	Front glass	☆3A
361	J19-0509-04	LED holder	3A
362	B07-0548-04	Counter window	3A
363	A20-1957-02	Panel (KX-650) **K,P,U,X,W,S,M**	☆3A
	A20-1963-02	Panel (KX-605)	☆3A
	A20-1967-02	Panel (KX-650) **T**	☆3A
364	B07-0556-03	VU meter escutcheon	☆3A
365a	B07-0221-04	Escutcheon (A) (KX-605)	3A
	B07-0551-04	Escutcheon (A) (KX-650)	3A
365b	B07-0222-04	Escutcheon (B) (KX-605)	3A
	B07-0552-04	Eschtcheon (B) (KX-650)	3A
365c	B07-0534-04	Ring (B) (KX-605)	3A
	B07-0553-04	Ring (B) (KX-650)	3A
366	H12-0335-14	Cassette lid holder	3A
367	K21-0609-04	VR knob (E)	3A
368	K23-0633-04	VR knob ass'y (F)	3A
369	J02-0049-14	Foot	3B
370	—	Bottom plate	3B
371	—	PCB frame	3B
372	G13-0438-08	Cushion (C)	3A
373	—	—	
374a	B38-0204-05	LED ass'y (RED)	3A
374b	B38-0205-05	LED ass'y (GRN)	3A
375	K27-0303-04	Knob (Pushbutton)	3A
376	B08-3302-04	Tape indicating window	3A
377	J19-1266-04	Lamp holder	2A
378	B30-0711-05	Lamp, 20V, 20mA	2A
379	N19-0534-04	Rubber washer, φ3.4 × φ8 × 1t	2A
380	N14-0074-05	Lock washer	2A
381	S46-1309-05	Leaf switch	2A
382	—	—	
383	—	Meter dress plate	☆2B
384	J11-0016-05	V clamper	3B
385	E03-0102-05	3P inlet **U,W,T,S,M,H**	1A
386	J41-0024-05	Power cord bushing **X**	1B
387	—	Power cord bushing holder **X**	1B
388	D32-0080-24	Switch stopper **X**	1B
389	S31-2001-05	Power voltage selector	1B
390	—	—	
391	—	Joint	2A
392	—	Switch holder	2A
393	B07-0565-14	Ring (Power switch)	3A
394	B07-0563-03	Frame cover	3A
395	K27-0316-04	Knob (Power switch)	3A
396	—	Knob back plate	2A
397	N08-0129-05	Dress screw, M3 · 8	3A



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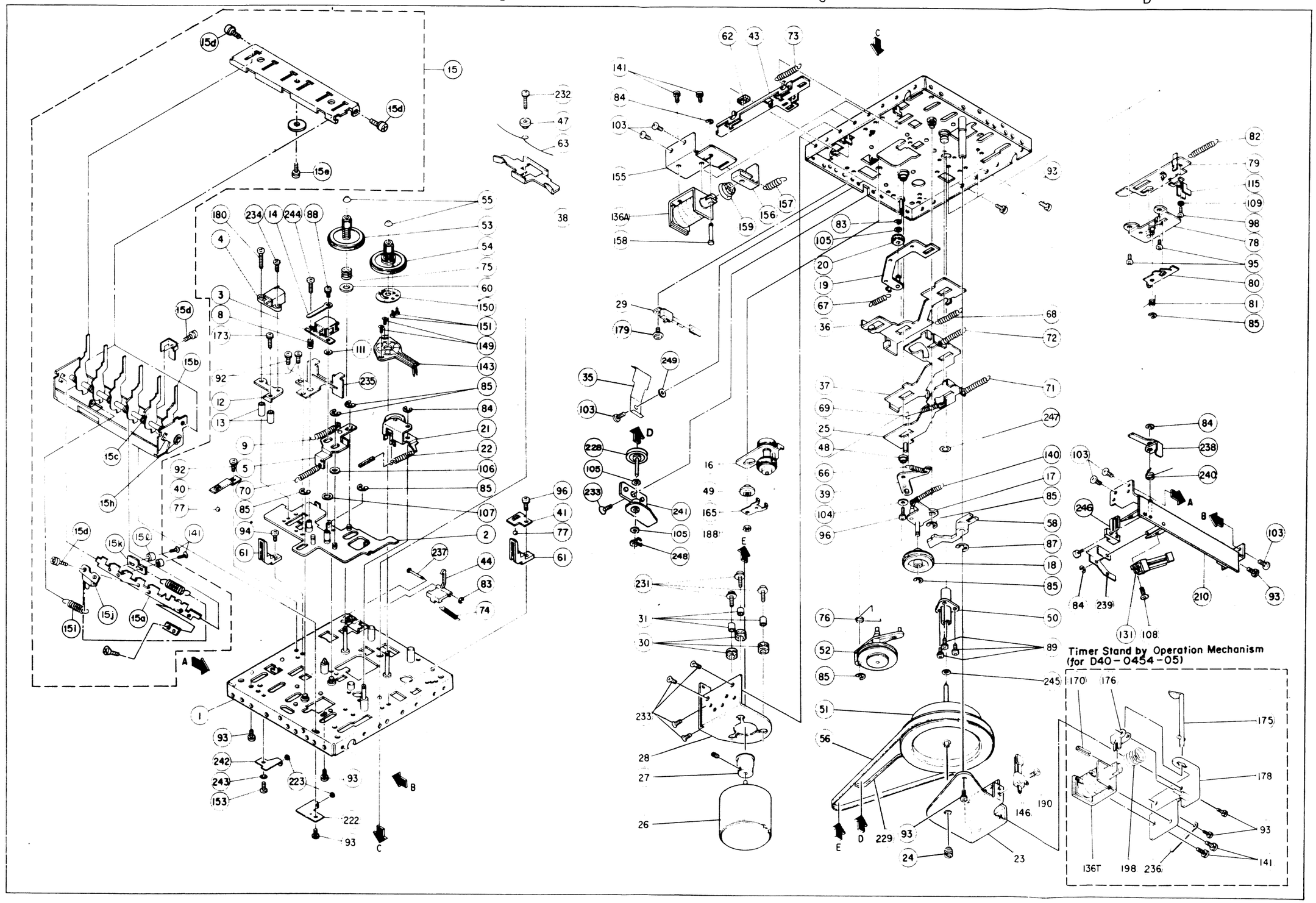
A
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Timer Stand by Operation Mechanism
(for D40-0454-05)
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176
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141
136T
198
236

KX-650 KX-650

Parts 136T, 170, 175, 176, 178, 198 and 236 are used for Timer Stand by Operation mechanism.
This mechanism is eliminated in **D40-0452-05**.
☆ New Parts × No Stock

Fig. No	Parts No.	Description	Remarks
1	A11-0328-08	Chassis ass'y	× 3A
2	A11-0329-08	Head panel ass'y	× 2B
3	T34-0007-05	R/P head	2A
4	T32-0004-05	Erase head	1A
5	D10-0540-08	Head panel pushing plate C	2A
6	—	—	
7	—	—	
8	G01-0682-08	R/P head spring B	2A
9	G01-0683-08	Link spring C	2A
10	—	—	
11	—	—	
12	J21-2279-08	Erase head base B	2A
13	J32-0504-08	Erase head stud E	2A
14	E23-0304-08	Lug terminal J	1A
15	**A13-0520-08**	**Pushbutton FA ass'y**	1B
15a	D10-0600-08	Pushbutton operational plate	3A
15b	D10-0801-08	Pushbutton lever FT	2A
15c	G01-0720-08	Pushbutton lever spring H	2A
15d	N09-0203-08	SEMUS screw M2.6 × 4	1A.1B.2A
15e	N09-0202-08	SEMUS screw M2.6 × 6	1A
15f	—	—	
15g	N09-0590-08	SEMUS screw M2 × 4	1B
15h	N24-3030-60	E-ring 3ϕ	2A
15i	G01-0701-08	Pushbutton operational spring	3A
16	D14-0210-08	FF idler arm ass'y	2C
17	D10-0548-08	Auto idler supporter ass'y B	2D
18	D14-0212-08	Auto ider	2D
19	D10-0541-08	REW arm BB ass'y	1C
20	D14-0213-08	REW idler B	1C
21	D14-0211-08	Pinch roller ass'y	2B
22	G01-0704-08	Pinch roller spring F	2B
23	J21-2289-18	Flywheel support	× 3D
24	N09-0822-08	Adjusting screw	3C
25	D10-0542-08	FF arm C ass'y	2C
26	T42-0105-05	Motor	3B
27	D15-0510-18	Motor pulley	3B
28	J21-2275-18	Motor bracket	× 3B
29	S46-0307-08	Play switch S7 LS1139TY	2B
30	G13-0431-08	Rubber cushion	3B
31	J31-0422-08	Spring tube	3B
32	—	—	
33	—	—	
34	—	—	
35	J19-1262-18	Cassette hold back spring plate Q	2B
36	D30-0004-08	Brake lever D	2C
37	D10-0543-08	REW lever A	2C
38	D30-0003-08	Brake arm D	1B
39	D10-0545-08	FF tension arm	2C
40	J19-1267-08	Head panel retainer A	2A
41	J19-1268-08	Head panel retainer D	2B
42	J21-2282-08	Flywheel metal support A	3D
43	D10-0544-08	Wrong erase preventing lever D	1C
44	D10-0539-08	Wrong erase preventing latch F	2B
45	—	—	
46	—	—	
47	J31-0423-08	Brake arm spacer B	1B
48	J31-0424-08	FF tension arm spacer B	2C
49	D21-0648-08	FF idler arm spacer	2C
50	D23-0518-08	Flywheel metal F	3D
51	D01-0306-08	Flywheel	3C
52	D19-0213-08	Slip clutch ass'y D	3C
53	D03-0010-08	Supply reel ass'y K	1B
54	D03-0009-08	Take-up reel ass'y Q	1B
55	B09-0205-08	Reel cap A	1B
56	D16-0214-08	Flat belt 84ϕ × 5 × 0.4t	3C
57	—	—	
58	D10-0546-08	Auto lever A	2D
59	—	—	
60	N19-0543-08	Polyethylene slider washer	1B
61	J90-0303-08	Cassette guide E	2A.2B
62	G13-0432-08	cushion A	1C
63	G01-0684-08	Brake arm spring C	1B
64	—	—	
65	—	—	
66	G01-0685-08	FF idler spring	2C
67	G01-0686-08	REW arm spring	2C
68	G01-0687-08	Brake lever spring E	2C
69	G01-0688-08	REW tension spring	2C
70	G01-0690-08	Head panel spring 70 = 72	2A
71	G01-0689-08	FF arm spring	2D
72	G01-0690-08	REW lever spring 70 = 72	2D
73	G01-0691-08	Wrong erace preventing latch spring B	1C
74	G01-0692-08	Wrong erase preventing latch spring D	3B
75	G01-0693-08	Back tension spring B	1B
76	G01-0694-08	Slip clutch spring D	3C
77	D90-0102-08	Steel ball 2ϕ	2A.2B
	D39-0076-08	**Pause ass'y H (includes 78 ~ 81, 115)**	
78	J19-1271-08	Pause base ass'y	1D
79	D10-0522-08	Pause arm ass'y	1D
80	D12-0213-08	Pause cam B	1D
81	G01-0703-08	Pause cam spring A	2D
82	G01-0696-08	Pause arm spring	1D
83	N24-3015-60	E ring ϕ1.5	1C.2B
84	N24-3020-60	E ring ϕ2.0	1B.2B.2D.3D
85	N24-3025-60	E ring ϕ2.5	2A.2B.2D.3C
86	—	—	
87	N24-3040-60	E ring ϕ4.0	2D
88	N09-0590-08	SEMUS screw M2 × 4 (N30-2004-46 + N16-0026-46)	1A
89	N09-0591-08	SEMUS screw M2 × 5 (N30-2005-46 + N16-0026-46)	3D
90	—	—	
91	—	—	
92	N09-0203-08	SEMUS screw M2.6 × 4 (N30-2604-11 + N16-0026-46)	2A
93	N09-0246-08	SEMUS screw M2.6 × 5 (N30-2605-08 + N16-0026-46)	1D.3A.3B.3C
94	N30-2605-46	Pan head screw M2.6 × 5	2A
95	N30-2603-46	Pan head screw M2.6 × 3	1D
96	N09-0202-08	SEMUS screw M2.6 × 6 (N30-2606-11 + N16-0026-46)	2B.2C
98	N30-2003-46	Pan head screw M2 × 3	1D
99	—	—	
100	—	—	
101	—	—	
102	—	—	
103	N09-0828-08	Pan head tapping screw M3 × 5	1B.2B 2D
104	N15-1026-46	Flat washer 2.8 × 7.5 × 0.5	2C
105	N19-0539-08	Polyethylene slider washer 2.1 × 4.0 × 0.13	1C.2C
106	N19-0537-08	Polyethylene slider washer 3.1 × 5.4 × 0.13	2B
107	N19-0538-08	Polyethylen slider washer 4.1 × 6.5 × 0.13	2B
108	N30-2006-46	Pan head screw M2 × 6	3D
109	N16-0020-46	Spring washer M2.0	1D
110	—	—	
111	N19-0536-08	R/P head spacer 5ϕ × 2.3ϕ × 0.2t	2B
112	—	—	
113	—	—	
114	—	—	
115	J21-2290-08	Pause arm support F	1D
131	S46-2304-08	Muting switch S9	3D
132	—	—	
133	—	—	
134	—	—	
135	—	—	
136A	T94-0056-08	Solenoid (B) 13V40	1B
136T	T94-0056-08	Solenoid (B) 13V40	3D
138	—	—	
139	—	—	
140	G01-0695-08	Auto idler supporter spring B	2D
141	N09-0227-08	SEMUS screw M3 × 4 (N30-3004 + N16-0030-46)	1B
143	J25-2353-08	Sensor switch P.C. board	2B
144	—	—	
145	—	—	
146	S46-1306-08	Leaf switch (for pause cancelling S8)	3D
147	—	—	
148	—	—	
149	N09-0824-08	Flat head screw M2 × 2.5	2B
150	G02-0314-08	Slider A	2B
151	N09-0826-08	Pan head screw M1.7 × 1.8	2B
152	—	—	
153	N09-0827-08	Pan head tapping screw M2.6 × 5	3A
154	—	—	
156	J21-2286-08	Solenoid mounting bracket D	× 1B
156	D10-0547-08	Auto stop activating lever	1C
157	G01-0698-08	Auto stop link spring	1C
158	D21-0649-08	Auto stop activating lever shaft	1B
159	G01-0699-08	Solenoid pole piece spring (for auto stop)	1C
160	—	—	
161	—	—	
162	—	—	
163	—	—	
164	—	—	
165	J19-1269-08	FF idler arm holder	2C
166	—	—	
167	—	—	
168	—	—	
169	—	—	
170	J12-0306-05	Spring pin	3D
171	—	—	
172	—	—	
173	N09-0823-08	SEMUS screw M2 × 13	2A
175	D10-0553-08	Timer slust lever	3D
176	D10-0554-08	Timer lever B	3D
179	N09-0825-08	Pan head screw M2.6 × 4.5 w/flat washer	2B
180	N35-2015-46	Binding screw M2 × 15	1A
188	N10-2026-46	Nut M2.6	2C
189	—	—	
190	N30-2608-46	Pan head screw M2.6 × 8	3D
210	J21-2280-18	Switch support ass'y	3D
222	J21-2284-08	Mechanism cushion base	3B
223	G13-0433-08	Rubber cushion A	3A
228	D15-0513-08	Pulley (for clutch drive)	3
229	D16-0218-08	Clutch drive belt 1.2 × 61	3C
230	—	—	
231	N09-2608-08	Pan head screw M2.6 × 8 FW	2B
232	N09-0579-08	SEMUS screw M2.6 × 12 (N30-2612-11 + N16-0026-46)	1B
233	N09-0834-08	Flat head tapping screw M3 × 6	2B.3B
234	N35-2005-46	Binding screw M2 × 5	1A
235	F09-0303-18	Head protector	2B
236	E23-0305-08	Lug terminal K	3D
237	D21-0647-08	REC lever shaft	2B
238	D10-0536-18	REC switch lever B	2D
239	D10-0537-08	REC switch lever C	3D
240	G01-0702-08	REC switch lever spring A	2D
241	J09-0307-08	Clutch drive pulley base B	2B
242	J21-2272-08	Mechanism cushion base B	3A
243	N16-0026-46	Spring washer M2.6	3A
244	N09-0830-08	Pan head screw M2 × 5 (Thread)	1A
245	N19-0540-08	Polyethylene slider washer ϕ2.5 × 0.5t	3D
246	S46-1310-08	REC switch S6	2D
247	N19-0551-08	Washer	
248	N29-0214-08	G ring	☆ 2B
249	N19-0559-08	Flat washer	☆ 2C

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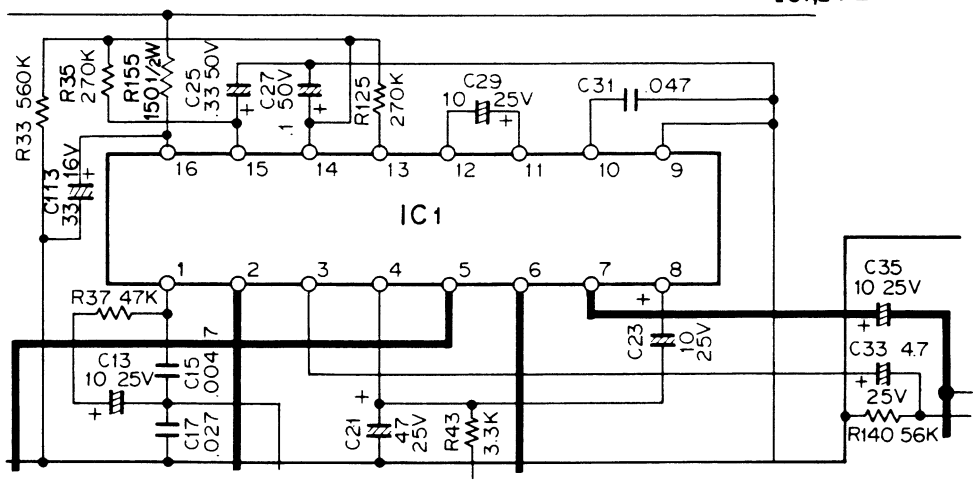
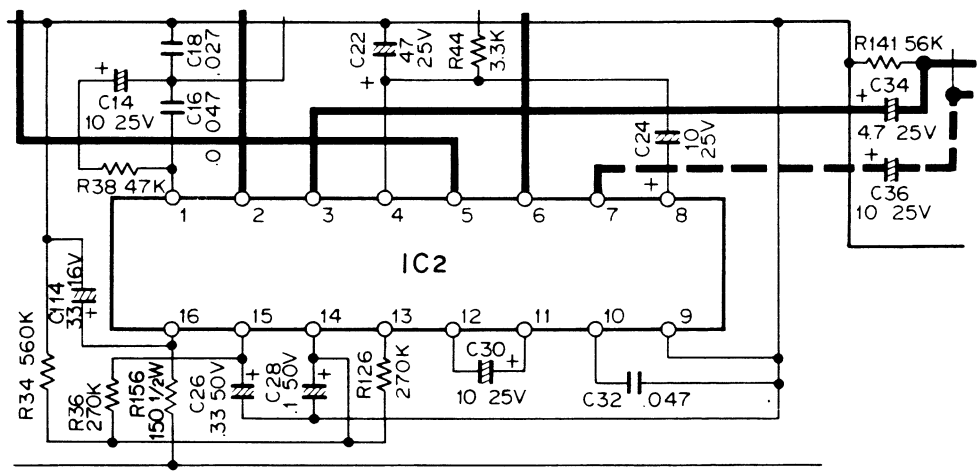
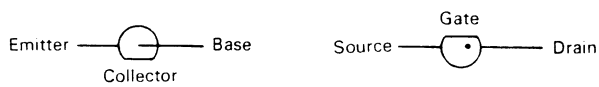
MODIFICATIONS from X28-1280-03, 07 to X28-1280-01, 06

IC1,2 : LM1011





Q7,8	2SC1222 (E,U) or 2SC1327 (S,T)	IC1,2	NE545B
Q9,10	2SK105 (F,H)	IC3	μPC4557
Q11 ~ 13,16,17 20,23,26	2SC828 (Q,R)	IC4,5	μPC566H3 (L,M)
Q14,18	2SC1384 (Q,R)	D1 ~ 4,18,19	1N60
Q15	2SC1419 (C)	D7	RD20EC
Q19	2SA733A (Q,R)	D8,9,11 ~ 13,15,20	1S1555
Q21	2SC828 (S)	D10,14	V06B
Q22	2SA684 (Q,R)	D16,17	SIRBA10



TOTAL

☆ New Parts

Fig. No	Parts No	Description	Remarks
–	B42-0009-04	Passed sticker	
–	B46-0055-20	Warranty card **P**	
–	B46-0060-00	Warranty card **T**	
	B46-0061-20	Warranty card **K**	
–	B46-0062-20	Warranty card **U**	
–	B46-0063-10	Warranty card **U**	
–	B46-0064-00	Warranty card **X**	
–	B50-2305-00	Instruction manual (KX-650) **K,M,S W,U**	
–	B50-2306-00	Instruction manual (KX-650) **M,X,P**	☆
–	B50-2307-00	Instruction manual (KX-650) **T**	☆
–	B50-2308-00	Instruction manual (KX-605) **H,M,X**	☆
–	H01-2322-01	Carton box (KX-605) **H,M,W,X**	☆
–	H01-2323-11	Carton box (KX650) **K,M,S,W,X,U**	☆
–	H01-2324-14	Carton box (KX650) **T**	☆
–	H01-2325-01	Carton box (KX-650) **P**	☆
–	H12-0346-05	Buffer fixture	☆
–	H20-0417-04	Polyethylene cover **M**	
–	H20-0934-04	Polyethylene cover **K,P,U,X,W,T S,H**	
–	H25-0078-04	Polyethylene bag	
–	W01-0301-05	Head cleaning bar	